



## DEPARTMENT OF THE NAVY

COMMANDING OFFICER  
NAVAL AIR STATION  
700 AVENGER AVENUE  
LEMOORE, CALIFORNIA 93246-5001

IN REPLY REFER TO:

NASLEMINST 8020.15  
N42X7

**MAR 12 2001**

### NAS LEMOORE INSTRUCTION 8020.15

Subj: HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE (HERO)  
EMISSIONS CONTROL (EMCON) BILL

Ref: (a) NAVSEA OP 3565 VOLUME 2  
(b) NOC ltr 8020 OPR N7132 Ser N71/0521 of 31 Oct 96

Encl: (1) HERO EMCON BILL  
(2) HERO Control Zones and Transportation Routes  
(3) Safe Separation Distance for Transmitters  
(4) HERO Classification of Ordnance Containing EED's

1. Purpose. To promulgate policy and procedures as required by reference (a) for safe handling, transportation and stowage of ordnance with regard to HERO at Naval Air Station (NAS) Lemoore.

2. Cancellation. Chapter 4 of NASLEMINST 8600.1C.

3. Scope. This instruction is applicable to all activities engaged in handling, storing, or transporting HERO SUSCEPTIBLE or HERO UNSAFE ORDNANCE aboard NAS Lemoore.

4. Background. A HERO Survey was conducted in Jul 96 in order to establish EMCON conditions and determine safe separation distances for operating transmitters during assembly/disassembly, handling, loading/downloading, storage, and transportation of HERO Unsafe, Unreliable and Susceptible Ordnance aboard NAS Lemoore. Results of the HERO Survey are contained in reference (b) and have been used for guidance in establishing HERO EMCON procedures. The survey revealed that no hazardous field strengths are generated from permanently installed equipment during normal operating conditions, precluding the need for HERO EMCON. Only routine controls for portable and mobile transmitters are necessary to manage HERO at NAS Lemoore. All personnel required to handle ordnance and operate transmitters shall be familiar with the general and special HERO restrictions outlined herein and reference (a).

5. HERO EMCON Bill. Provides specific guidance germane to the emitter systems at NAS Lemoore. In order to mitigate the concern for HERO, the General HERO Requirements are listed in enclosure (1). In order to simplify the HERO EMCON Bill, the station has been divided into THREE (3) zones as identified in enclosure (2). Enclosure (3) provides HERO separation distance for Communication, Radar, Portable, Mobile and Aircraft Transmitters. Enclosure (4) provides the current HERO status for on-station ordnance containing Electro-explosive Devices (EED's).

6. Definitions

a. Electro-explosive Device. Any single discrete unit, device, or assembly whose actuation is caused by the application of electric energy which, in turn, initiates an explosive, propellant or pyrotechnic material contained therein.

b. EMCON. The emission control of high-powered transmitters to remove or reduce to safe levels electromagnetic radiation in those areas where HERO Susceptible, Unreliable, or Unsafe Ordnance is being handled.

c. Exposure. Any situation where an ordnance item is not in an approved all-metal container.

d. HERO Conditions. Restrictions to be implemented to acquire a HERO Safe Environment. The following five different HERO Conditions can be set at NAS Lemoore.

(1) HERO Condition 0. During all authorized procedures at all locations involving HERO Safe Ordnance, during storage in a magazine of Unsafe and Susceptible Ordnance and during storage in a Ready Service Locker (RSL) of Susceptible Ordnance.

(2) HERO Condition 1. During exposure of HERO Unsafe Ordnance at Zone 1.

(3) HERO Condition 2. During exposure of HERO Unsafe Ordnance at Zone 2.

(4) HERO Condition 3. During exposure of HERO Unsafe Ordnance at Zone 3.

(5) HERO Condition 4. During the presence and handling at all locations involving HERO Susceptible Ordnance.

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e. HERO Safe Ordinance. Any ordnance item that is percussion initiated, sufficiently shielded, or otherwise so protected that all EED's contained by the item are immune to adverse affects (safety or reliability) when the item is employed in its expected RF environment, provided that the general HERO requirements are observed.

f. HERO Susceptible Ordinance. Any ordnance containing EED's proven (by test or analysis) to be adversely affected by RF energy to the point that the safety and/or reliability of the system is in jeopardy when the system is employed in expected RF environments.

g. HERO Unreliable Ordinance

(1) Any ordnance item, including those having a HERO Safe or Susceptible classification, whose performance is degraded due to exposure to the RF environment; when its internal wiring is physically exposed; when tests are being conducted on the item that result in additional electrical connections to the item; when EED's having exposed wire leads are present, handled, or loaded in any but the tested condition; when the item is being assembled or disassembled; or when such ordnance items are damaged causing exposure of internal wiring or components or destroying engineered HERO protective devices.

(2) Ordinance items containing EED's, whose performance is degraded due to exposure to the RF environment, which have not been classified as HERO Safe or Susceptible by either test or design analysis.

h. HERO Unsafe Ordinance

(1) When internal wiring is physically exposed on any ordnance item, including those having a classification of HERO Safe or Susceptible Ordinance, to an RF environment that may cause accidental initiation or detonation; when tests are being conducted on the item that result in additional electrical connections to the item; when EED's having exposed wire leads are present, handled, or loaded in any but the tested condition; when the item is being assembled or disassembled; or when such ordnance items are damaged causing exposure of internal wiring or components or destroying engineered HERO protective devices.

(2) Ordnance items containing EED's, whose exposure to the RF environment may cause accidental initiation or detonation, which have not been classified as HERO Safe or Susceptible by either test or design analysis.

i. Mobile Transmitter. Any transmitter installed in a vehicle or not permanently installed at a structure.

j. Portable Transmitters. Any hand held transmitter.

k. Presence. The unattended existence of a system in an RF field (i.e., a weapon on the deck, on transport/handling equipment, loaded on an aircraft, etc.).

l. Radiation Hazards (RADHAZ). Radio-frequency electromagnetic fields of sufficient intensity to produce harmful biological effects in humans, cause spark ignition of volatile combustibles, or actuate electro-explosive devices.

m. Radio Frequency (RF). A frequency useful for radio and radar transmission, 10 KHz to 300 Ghz.

n. Radio Frequency (RF) Environment. An electromagnetic field.

o. Zone. NAS Lemoore for the application of HERO EMCON is divided into three zones.

(1) Zone 1. Administration and Family Housing Area.

(2) Zone 2. Ordnance Area, areas east of Runway 32R.

(3) Zone 3. Operations Area, areas west of and including Runway 32R.

7. HERO Classification. The HERO classification for a particular ordnance item can be found in Table 6-1 (HERO Classification Listing) of reference (a).

\*\*\* CAUTION \*\*\*

Any item containing EED's not listed  
in Table 6-1 of reference (a) and  
all untested ordnance will be  
considered HERO Unsafe.

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\*\*\* NOTE \*\*\*

Any HERO Susceptible, Unsafe or  
Untested Ordnance item contained  
in a all-metal container can be  
considered as HERO Safe.

## 8. Responsibilities

### a. Commanding Officers/Officers in Charge and Department Heads/Special Staff Assistants

(1) Ensure that all operators of communication equipment and aircrew comply with this order.

(2) Ensure that personnel operating transmitters are properly instructed in their use during HERO EMCON conditions.

(3) Will ensure that all portable and mobile transmitters under their cognizance are tagged with a HERO Cautionary Label (provided by the Ground Electronics Maintenance Division [GEMD]), and that NO transmitter is operated within specified distances of ordnance as outlined in enclosure (4), as described on the cautionary label attached to portable and mobile transmitters and as required in enclosure (1), the Station HERO EMCON Bill.

(4) Notify GEMD and the Explosive Safety Officer (ESO) prior to using any new radiating electronic equipment at NAS Lemoore.

(5) Where applicable, will advise contractors who are authorized to use portable and/or mobile transmitters, of all applicable restriction and ensure that they are cognizant of the restriction applicable for any HERO condition.

(6) Shall request the Station Weapons Officer to have applicable HERO conditions set and secured prior to and after any handling, loading, or unloading of any HERO Unsafe or Susceptible Ordnance.

(7) Promulgate supplementary instructions pertaining to their own equipment, personnel and operating procedures as required and ensuring compliance with this instruction.

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b. Weapons Officer

(1) Is the central point of contact for determination of compliance with the appropriate references as it relates to all forms of ordnance handled at NAS Lemoore.

(2) Ensure that all ordnance personnel are familiar with HERO restrictions applicable to ordnance operations.

(3) Will determine the level of HERO condition required and will request the NAS Operations Duty Officer (ODO) or the NAS Command Duty Officer (CDO) to set and secure the applicable HERO condition outlined in enclosure (1).

(4) When issuing any HERO Susceptible or Unsafe Ordnance to a user, advise the user of its HERO status during all aspects of its life cycle (i.e., transportation, storage, assembly, handling, loading operation, etc.).

(5) Will be responsible for ensuring that all handling of HERO Susceptible and/or HERO Unsafe Ordnance is per this instruction and reference (a). Ensuring that when any HERO Susceptible and Unsafe Ordnance items are in a HERO vulnerable environment they are enclosed in all-metal containers or appropriate HERO Conditions are set.

(6) Ensure that radios installed in ordnance handling vehicles maintain a minimum 10 foot antenna-to-ordnance separation distance.

(7) Will maintain an inventory of all HERO Susceptible and Unsafe Ordnance items aboard NAS Lemoore and inform the ESO upon receipt of such ordnance items so that the HERO issues can be mitigated to ensure both safety and reliability.

c. Explosive Safety Officer (ESO)

(1) Will coordinate the HERO program and account for all station and tenant commands information as presented in reference (b) concerning ordnance inventory/operations and transmitter/antenna systems present.

(2) Maintain this instruction, the EMCON Bill and HERO Surveys current.

(3) Provide a briefing to visiting or transient activities and contractors concerning the HERO restriction applicable to NAS Lemoore.

(4) Ensure that HERO warning signs prohibiting radio transmissions are placed at the entrance to the Magazine Areas and all ordnance handling or storage facilities.

(5) Coordinate with GEMD the approval/disapproval of all new or modified transmitter installations, frequencies and requests to operate amateur radio stations, submitting site approval request as required.

(6) Will act as liaison to Naval Ordnance Safety and Security Activity (NOSSA) and Naval Surface Warfare Center, Dahlgren Division for all issues concerning HERO.

d. Command Duty Officer (CDO)

(1) When notified will be responsible for setting, monitoring and securing the appropriate HERO condition in the Administrative Area (Zone 1) per the requirements outlined in enclosure (1).

(2) Will be responsible for assisting the Security Officer in notifying contractors or station visitors of the HERO condition that exists.

(3) Will ensure that an appropriate log entry is made, indicating time set, condition which prevails, and the time secured.

e. Operations Duty Officer (ODO)

(1) Will act as the central POC when notified for setting, monitoring and securing of the appropriate HERO EMCON condition in the Ordnance Area (Zone 2) and Operations Area (Zone 3) as outlined in enclosure (1). Will ensure that an appropriate log entry is made, indicating time set, condition which prevails, and the time secured.

(2) Will ensure that applicable transmitting devices under his cognizance are not operated within specified distances of ordnance evolutions as outlined in enclosure (3) and are secured during HERO conditions and remain so until such HERO condition is secured.

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(3) Restrict aircraft on the flight lines from indiscriminately energizing any transmitters (communications, radar or electronic warfare equipment).

(4) Ensure that taxiing/landing aircraft are informed when HERO conditions are set.

(5) Will set the applicable HERO condition and advise the Station Weapons Officer and ESO whenever there is an inbound transient aircraft with HERO Susceptible, Unreliable, Unsafe Ordnance on board.

(6) Include HERO EMCON radio operating training as a qualification requirement for vehicle operators on the airfield.

f. Ground Electronics Maintenance Officer

(1) Will ensure that all portable including cellular telephones and mobile transmitters are affixed with a HERO cautionary label stating the safe distances such transmitter may be operated in the vicinity of any ordnance.

(2) Will be the point of contact for and maintain all information (i.e., type, power, antenna type, location, etc.) of any transmitter operated aboard NAS Lemoore as required by reference (a).

(3) Inform the ESO when stationary communication transmitters or radars are relocated or new equipment is obtained. These changes must be submitted for HERO review prior to the equipment being operated.

(4) Establish check-in procedures for owners of citizen's band and other mobile radios and cellular telephones to familiarize operators with HERO.

g. Security Department. Shall be responsible for notifying station personnel, visitors and contractors who have mobile transmitters in their vehicles that transmission on NAS Lemoore will be permitted only with written permission of the Commanding Officer.



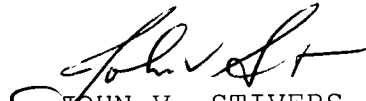
h. Fire Department. In the event of an ordnance accident or incident, shall act as on-scene commander ensuring accident response units (Fire, Ordnance and Security Departments) maintain a minimum separation distance of 150 feet from the accident site when 3 mobile radios are in use and 50 feet when 3 portable radios are in use, until such time as the situation has been resolved (i.e., Explosive Ordnance Disposal (EOD) and /or the items has been rendered safe).

9. Action

a. To ensure ordnance handling safety, precautions must be taken to limit the radiation of RF energy in and around ordnance handling areas. Enclosure (1) contains standard/general HERO requirements which WILL always be in effect and Chapter 5 of reference (a) provides additional HERO requirements during ordnance operations.

b. When required to take action for a certain HERO condition all activities will report to the CDO or ODO when such action has been completed.

c. When requesting any HERO conditions be set all activities will not commence operations until notified by the Station Weapons Officer that the applicable HERO condition has been met.

  
JOHN V. STIVERS

Distribution: (NASLEMINST 5215.2V)  
Lists A & C

HERO EMCON BILL

1. Discussion. Since the results of the HERO Survey revealed that no hazardous field strengths are generated from permanently installed equipment during normal operating conditions and with the controls of portable and mobile equipment, both aircraft and vehicular, sited in the General HERO Requirements section of this instruction, HERO EMCON is not required during normal operation aboard NAS Lemoore. Only during unusual situations or accidents involving ordnance containing EED's, will HERO EMCON be required.

2. General HERO Requirements. The general HERO requirements given in the following paragraphs MUST be implemented when handling any ordnance which contains EED's whether the ordnance is classified HERO Safe, Susceptible, Unsafe, or Unreliable.

a. DO NOT operate any mobile or portable transmitter within the Magazine, Missile and Ready Service Locker (RSL) Areas or within 25 feet of any Combat Aircraft Loading Areas (CALA) when aircraft are present or any ordnance evolution. Cellular telephones shall not be operated in any hangar, maintenance space, anywhere on the flight line and in RSL areas.

b. Comply strictly with authorized weapons checklists or loading manuals.

c. Plan ordnance operations so that there is a minimum exposure of ordnance to the RF environment.

d. Do not alter ordnance systems unless such alterations have been specifically authorized by NAVSEASYS COM or Commander, Naval Air Systems Command (NAVAIRSYSCOM).

e. Do not allow electrical contacts, electrodes (primers) or contact pins to touch any object capable of conducting RF energy during handling and loading operations. Objects capable of conducting RF energy include aircraft structures, bomb rack breeches, tools, other cartridges.

f. Do not handle umbilical cables and cables connectors unnecessarily.

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g. Make no electrical connections to air-launched ordnance system before the ordnance is racked to the aircraft unless the restrictions of Chapter 5 of reference (a) are observed or unless such procedures have been specifically authorized in the checklist or loading manual. Electrical connections to ordnance are the most likely paths for RF energy to enter.

\*\*\* CAUTION \*\*\*

Racking an ordnance item to the aircraft first and tightening the sway braces before making electrical connection reduces the amount of RF energy induced into the item's internal circuitry.

h. Transport all HERO Unsafe, Susceptible, or Unreliable Ordnance in completely enclosed all-metal containers whenever possible.

i. Cover all open electrical connectors on ordnance items with non-shortening caps to prevent the pins of these connectors from accidentally being touched. The caps should be removed just prior to connector mating and reinstalled promptly upon connector unmating.

j. Do not expose internal wiring and firing circuits by assembling or disassembling ordnance in an RF environment.

k. Testing procedures which involve electrical connections to ordnance are permitted only if authorized by an appropriate manual.

l. Do not store igniters, primers, detonators, and other items containing EED's in the same compartment or magazine or within five feet of RF cables, wave guides, or other transmitting equipment. Storage shall be in all-metal containers whenever possible.

m. On shore stations, conduct all handling and loading operations so that the nearest part of ordnance, or any metallic structure or object attached to the ordnance (e.g., aircraft, handling equipment, tow vehicle, etc.), is at least 25 feet from the nearest extremity of any antenna radiating more than 5 watts of power.

n. During aircraft loading/downloading operations, prohibit all radio and radar transmissions originating from the aircraft being loaded/downloaded. If other aircraft in the loading area are capable of radiating hazardous RF fields, ensure that those aircraft do not transmit within the safe separation distances given in Tables 2-2, 2-3 and 2-4 of reference (a). If maintenance is being performed which requires operating equipment that may radiate hazardous RF fields in the loading/downloading areas, that equipment must be connected into an antenna dummy load.

o. Silence all transmitters (portable and/or aircraft) within hangars during handling, installation or removal of HERO Unsafe or Susceptible Ordnance within the same hangar. Do not conduct maintenance or operational checks that could cause aircraft transmitters to radiate; however, transmitters may operate into dummy loads.

p. Any cellular, amateur and/or Citizen's Band radio/phones that have NOT been checked/authorized by GEMD and does NOT have a current HERO Warning Label will not be operated in Hangar Maintenance Spaces, CALA, Magazine/RSL Areas, or on the Flight Line as posted at each entrance.

3. Zones. In order to control HERO with fewest restrictions, NAS Lemoore has been divided into the following zones.

- a. Zone 1. Administration and Family Housing Areas
- b. Zone 2. Ordnance Areas (areas east of Runway 32R)
- c. Zone 3. Operation Area (areas west of and including Runway 32R)

4. HERO EMCON Procedures

a. HERO Condition 0. HERO EMCON is not required. All transmitters listed in enclosure (2) may be operated. Observe all General HERO Requirements outlined in this instruction.

b. HERO Condition 1

(1) Maintain HERO Unsafe Ordnance separation distance for all mobile and portable transmitters as outlined in enclosure (3).

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(2) When emergency personnel respond to an ordnance accident and more than two radios are in use, maintain a minimum separation distance of 150 feet between VHF mobile and 50 feet between portable radios of HERO Unsafe Ordnance.

c. HERO Condition 2

(1) Maintain HERO Unsafe Ordnance separation distance for all mobile and portable transmitters as outlined in Attachment (3) of this chapter.

(2) When emergency personnel respond to an ordnance accident and more than two radios are in use, maintain a minimum separation distance of 150 feet between VHF mobile and 50 feet between portable radios of HERO Unsafe Ordnance.

d. HERO Condition 3

(1) Silence aircraft HF (2-30 MHz) and radar transmitters. Do not conduct maintenance or operational checks which could cause transmitters to radiate; however, transmitters may operate into dummy loads.

(2) Maintain HERO Unsafe Ordnance separation distance for all mobile and portable transmitters as outlined in Attachment (3) of this chapter.

(3) When emergency personnel respond to an ordnance accident and more than two radios are in use, maintain a minimum separation distance of 150 feet between VHF mobile and 50 feet between portable radios of HERO Unsafe Ordnance.

e. HERO Condition 4

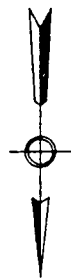
(1) Silence aircraft transmitters within hangars during handling, installation or removal electric impulse cartridges within the same hangar. Do not conduct maintenance or operational checks which could cause aircraft transmitters to radiate; however, transmitters may operate into dummy loads.

(2) Maintain HERO Susceptible Ordnance separation distance for all other aircraft, mobile and portable transmitters as outlined in enclosure (3).

5. Applications

<u>Ordnance</u>	<u>Situation</u>	<u>Location</u>	<u>HERO Condition</u>
HERO Safe	Authorized procedures	All	0
HERO Unsafe	Exposure	Zone 1	1
		Zone 2	2
		Zone 3	3
	Storage	Magazines	0
HERO Susceptible	Presence	All	4
	Storage	Magazine/RSL	0

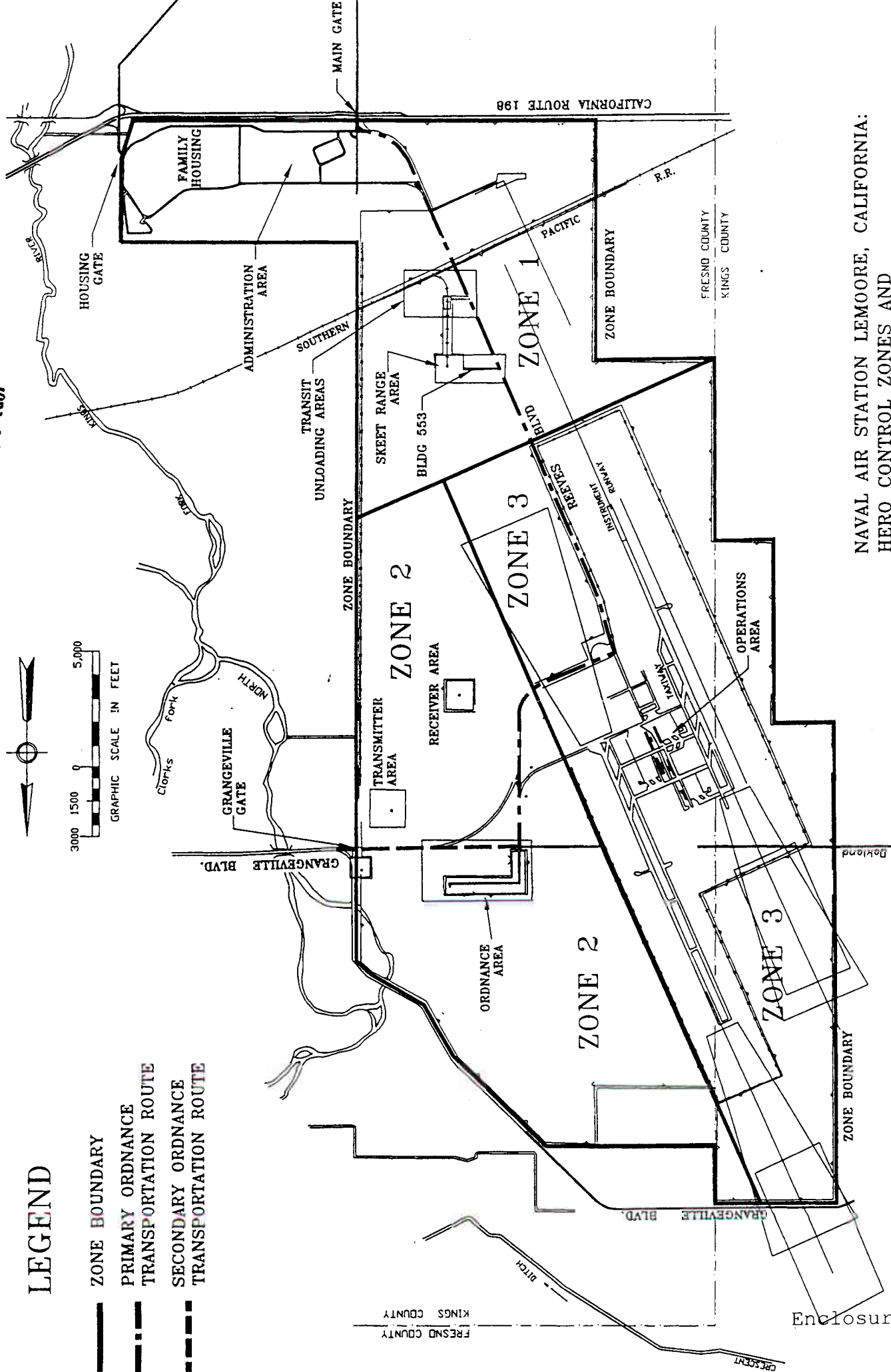
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3000 1500 0 5,000  
GRAPHIC SCALE IN FEET

# LEGEND

- ZONE BOUNDARY
- - - PRIMARY ORDNANCE TRANSPORTATION ROUTE
- - - SECONDARY ORDNANCE TRANSPORTATION ROUTE



NAVAL AIR STATION LEMOORE, CALIFORNIA:  
HERO CONTROL ZONES AND  
ORDNANCE TRANSPORTATION ROUTES

# COMMUNICATION AND RADAR TRANSMITTERS

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Building Number	Antenna Nomenclature	Antenna Type	Antenna Gain (dBi)	Transmitter Frequency (MHz)	Transmitter Max. Avg. Power (watts)	Transmitter Type	Separation Distance	
							HERO UNSAFE ORDNANCE (feet/meters)	HERO SUSCEPTIBLE ORDNANCE (feet/meters)
1	AS-390/SRC NT-66095 NT-66095 AS-390/SRC DB-506	Coaxial stub	2.1	225-400	20	AN/GRC-171	30/9	10/3
		Dipole	2.1	116-152	25	AN/GRC-211	66/20	13/4
		Dipole	2.1	116-150	10	AN/GRT-21	42/13	10/3
		Coaxial stub	2.1	225-400	10	AN/GRT-22	21/7	10/3
		Dipole whip	7.35	138-151	65	AN/FRC-166	163/50	35/11
3,5,468, 474 (TWR)	GPU-75	Folded dipole	2.1	75.24	1	AN/FSN-7 (AFLS)	20/6	10/3
5	AS-390/SRC NT-66095 NT-66095 AS-390/SRC	Coaxial stub	2.1	225-400	20	AN/GRC-171	30/9	10/3
		Dipole	2.1	116-152	25	AN/GRC-211	66/20	13/4
		Dipole	2.1	116-150	10	AN/GRT-21	42/13	10/3
		Coaxial stub	2.1	225-400	10	AN/GRT-22	21/7	10/3
		Folded coaxial	3.6	136-174	25	MOT D33MJ	67/20	14/4
11,140, 966	TAD-6072A	Folded coaxial	3.6	136-174	25	MOT D33MJ	67/20	14/4
90,145	TAD-6072A	Folded coaxial	3.6	150-174	40	GE N3Bxxx040xx	77/23	17/5
145	DB-201	Ground plane	2.1	150-174	40	GE N3Bxxx040xx	64/20	14/4
94,179, 180,224, 225,754	MOT TAD-6072A	Folded coax	3.6	136-153	40	GE N5Gxxx40xx	84/26	18/6
184,440	DB-205	Coaxial dipole	2.1	136-153	40	GE N5Gxxx40xx	71/22	15/5
190	TAD-6072A	Folded coaxial	3.6	150-174	40	GE N3Bxxx040xx	77/23	17/5
210/BGR 1 240/BGR 2 270/BGR 3 300/BGR 4 330/BGR 5	TAD-6072A	Folded coaxial	3.6	136-153	40	GE N5Gxxx40xx	84/26	18/6
258	MOT TAD-6072A	Folded coaxial	3.6	136-153	40	GE N5A51	84/26	18/6
288	MOT TAD-6072A	Folded coaxial	3.6	136-153	40	GE N5Gxxx40xx	84/26	18/6
450	FA-9344 FAA-10016 N/A	Parabolic Phased array Aperature	33.5 21 8	2700-2900 1030-1030 1030-1030	875 5.5 0.2	AN/GPN-27 AN/UPK-27 FA-9875 (TST)	960/292 47/14 2/1	679/207 24/7 1/0
457	AS-1347/SPN-42	Parabolic	48.7	33000-33400	20	AN/SPN-42 (ACLS)	113/34	48/15
461	OE-258/URN	Dipole array	6	962-1215	400	AN/URN-25	77/23	38/12
462	DPV-35A DPV-37 AS-390/SRC TAD-6072A DB-506	Dipole Coaxial Coaxial stub Folded coaxial Colinear	2.1 2.1 2.1 3.6 7.35	116-150 225-400 225-400 138-151 136-174	10 10 20 66 100	AN/GRT-21 AN/GRT-22 AN/GRC-171 AN/FRC-166 MOT C73KS	42/13 21/7 30/9 107/33 206/63	10/3 10/3 10/3 23/7 44/13
466,467, (PAR)	AS-3160/UPN	Phased array	40.3	9000-9160	66	AN/FPN-63 (FIXED)	173/53	122/37
	AS-3161/UPN	Phased array	39.7	9000-9160	79.2	AN/FPN-63 (MTI)	177/54	123/38
551	DB 201 DB 225 DB 230	Ground plane Colinear Yagi	2.1 7.1 9.1	136-174 136-174 136-174	90 90 90	MOT C63RT MOT C63RT MOT C63RT	107/32 190/58 239/73	23/7 41/12 51/16
700	DB-205 DB-404 DB-404	Coaxial dipole Dual dipole Dual dipole	2.1 7.1 7.1	136-153 450-470 450-470	40 25 25	N5Gxxx40xx N5Uxxx25xx N5Uxxx25xx	71/22 30/9 30/9	15/5 10/3 10/3
705 (POLE)	TDD-6071A	Colinear	6.9	136-174	110	MOT C73RC	211/64	45/14
722	DB-224	Dipole array	8.1	138-151	38	AN/FRC-166	143/44	30/9
730	MOT TDD-6071A MOT TAD-6072A	Colinear Folded coaxial	7.35 3.6	138-151 138-151	38 38	MOT L44BC MOT L44BC	132/40 85/26	28/8 18/6
750	TAD-6071A	Folded coaxial	3.6	138-151	38	AN/FRC-166	81/25	17/5
751	DB-201	Ground plane	2.1	136-174	25	MOT D33MJ	56/17	12/4
760	Antenex FG 1403 DB-201	Dipole Ground plane	5.1 2.1	136-174 136-174	25 40	MOT D33MJ GE N5A53	79/24 71/22	17/5 15/5
765	Antenex FG 1403	Dipole	5.1	136-174	25	MOT D33MJ	79/24	17/5



## PORTABLE AND MOBILE TRANSMITTERS

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Antenna Number	Antenna Nomenclature	Antenna Type	Antenna Gain (dBi)	Transmitter Frequency (MHz)	Transmitter Power (watts)	Transmitter Type	Separation Distance	
							HERO UNSAFE ORDNANCE (feet/meters)	HERO SUSCEPTIBLE ORDNANCE (feet/meters)
770	DB-201	Ground plane	2.1	136-174	25	MOT D33MJ	56/17	12/4
773	Antenex FG 1403	Dipole	5.1	136-174	25	MOT D33MJ	79/24	17/5
840	TAD-6072A	Folded coaxial	3.6	136-153	40	N5Gxxx40xx	84/26	18/6
	DB-201	Ground plane	2.1	136-153	40	N5Gxxx40xx	71/22	15/5
	DB-506	Dipole whip	7.35	150-174	40	GE N5Hxxx40xx	118/36	26/8
861	TAD-6071A	Folded coaxial	3.6	136-153	40	N5Gxxx40xx	84/26	18/6
930	DB-506	Dipole whip	7.35	138-150.5	66	AN/FRC-166	165/50	35/11
	TDE-6071A	Colinear	9.0	450-470	45	MOT T44RT	44/13	10/3
966	MOT TDD-6071A	Colinear	7.35	136-143	5	Betatronics 1800 TELEMETRY, EMS	44/13	10/3
996 (MARS)	CUSHCRAFT SKYWALKER SERIES CUSHCRAFT G5RV	HF Yagi	12.1	7-30	100	KEN TS-450S	3624/1103	362/110
		5-Band flat-top	2.1	3.5-4/80M	1000	W/AL-80 PWR AMP	11462/3489	1146/349
				7-7.3/40M	100	KEN TS-450S	1146/349	115/35
				14-14.35/20M	1000	W/AL-80 PWR AMP	3624/1103	362/110
				21-21.45/15M	1000	KEN TS-450S	1146/349	115/35
				28-29.7/10M	1000	W/AL-80 PWR AMP	3624/1103	362/110
					100	KEN TS-450S	1146/349	94/29
					1000	W/AL-80 PWR AMP	3624/1103	298/91
					100	KEN TS-450S	1146/349	74/23
					1000	W/AL-80 PWR AMP	3624/1103	233/71
					100	KEN TS-450S	1146/349	62/19
					1000	W/AL-80 PWR AMP	3624/1103	196/60
	CUSHCRAFT A50-5S	Yagi	12.6	50-54/6M	25	YAE 736R	512/156	73/22
	CUSHCRAFT ARX-S2B	Monopole	7.0	144-148/2M	50	YAE 736R	132/40	29/9
					20	KEN TS-700A	83/25	18/16
					25	ALNICO DR-1200T	93/28	20/6
	N/A	Colinear		420-450/70CM	50	YAE 736R	118/36	40/12
RUNWAY 32 (PAR)	AS-2580/UPN	Parabolic	28	15412-15688	7.5	AN/TRN-28 (AZ)	8/3	6/2
	AS-2579/TRN	Parabolic	28	15412-15688	7.5	AN/TRN-28 (EL)	10/3	10/3
LSO SHACK	AS-390/SRC	Coaxial stub	2.1	225-400	20	AN/GRC-171	30/9	10/3
PARKS	DB-201	Ground plane	2.1	136-174	90	MOT C63RT	107/32	23/7
RIDGE	DB-225	Dipole	7.1	136-174	90	MOT C63RT	190/58	41/12
	DB-230	Yagi	9.1	136-174	90	MOT C63RT	239/73	51/16
VARIOUS	500T-2	1/2-wave dipole	2.1	138.525	4	REPCO FIRE ALARM	22/7	10/3
TED	AAI-ACU DCP	Cardiod	3	410.075	2	AAI-ASOS	10/3	10/3
PORTABLE	N/A	Stub	0.9	146-178	5	MOT H01KDC	20/6	10/3
PORTABLE	NAD-6282A	Heliflex	0.9	136-174	5	MOT H33LC	22/7	10/3
PORTABLE	N/A	Heliflex	2.1	136-174	2.5	MOT H33SS	18/5	10/3
PORTABLE	N/A	Stub	0.9	136-174	6	MOT H43QX	24/7	10/3
						MOT H43SS	24/7	10/3
						MOT H43SV	20/6	10/3
PORTABLE	NAD-6282A	Heliflex	0.9	136-174	4	MOT H43GC	20/6	10/3
PORTABLE	NAD-6282A	Heliflex	0.9	136-174	4	MOT H43GC	20/6	10/3
PORTABLE	NAD-6282A	Heliflex	0.9	136-174	5	MOT H43BM	22/7	10/3
PORTABLE	N/A	Heliflex	2.1	403-512	5	MOT H44YX	10/3	10/3
PORTABLE	PO4533	Dipole	2.1	116-150	5	AN/URC-101	29/9	10/3
PORTABLE	PO4534	Dipole	2.1	225-400	20	AN/URC-101	30/9	10/3
PORTABLE	N/A	Stub	0.9	824-890	3	Cellular phone	10/3	10/3
PORTABLE	N/A	Stub	8	824-890	50	Cellular phone	26/8	11/3
PORTABLE	N/A	Stub	8	824-890	100	Cellular phone	37/11	16/5
MOBILE	K-42	Whip	2.1	138-151	35	AN/VRC-82	66/20	14/4

# PORTABLE AND MOBILE TRANSMITTERS MAR 12 2001

Antenna Number	Antenna Nomenclature	Antenna Type	Antenna Gain (dBi)	Transmitter Frequency (MHz)	Transmitter Power (watts)	Transmitter Type	Separation Distance	
							HERO UNSAFE ORDNANCE (feet/meters)	HERO SUSCEPTIBLE ORDNANCE (feet/meters)
MOBILE	TAD-6111A	Whip	2.1	136-153	40	N5Gxxx40xx	71/22	15/5
MOBILE	N/A	Whip	2.1	150-174	40	N5Gxxx40xx	64/20	14/4
MOBILE	N/A	Whip	2.1	150-174	40	N3Exxx040xx	64/20	14/4
MOBILE	N/A	Whip	2.1	450-470	25	N5Uxxx25xx	17/5	10/3
MOBILE	N/A	Whip	2.1	136-153	35	GE NPH10	66/20	14/4
MOBILE	N/A	Whip	2.1	136-162	25	MOT D33MJ	56/17	12/4
MOBILE	N/A	Whip/Dipole	2.1	26.965-27.255	4	Citizens band (CH 1-23)	229/70	13/4
MOBILE	N/A	Whip/Dipole	2.1	27.235-27.405	12	Citizens band (CH 24-40,SSB)	397/121	22/7
MOBILE	N/A	Whip	2.1	136-174	150	MOT T83JJ	138/42	29/9
MOBILE	N/A	Dipole	2.1	403-512	40	MOT D44KM MOT T44KX	24/7	10/3
MOBILE	N/A	Whip	2.1	136-174	25	GE N3A113 GE N5A53	56/17	12/4
AIRCRAFT	204-075-324-3	Wire	2.1	2-30	200	AN/ARC-94	1621/493	162/49
AIRCRAFT	AS-2486/ARC-114	Dipole	2.1	30-76	18	AN/ARC-114	486/148	25/8
AIRCRAFT	N/A	N/A	3	225-400	15	AN/ARC-116	29/9	10/3
AIRCRAFT	Various	Various	2.1	30-88	15	AN/ARC-186(V)	444/135	23/7
AIRCRAFT	N/A	Blade	2.1	116-152	16	AN/ARC-186(V)	53/16	11/3
AIRCRAFT	N/A	Blade	2.1	225-400	20	AN/ARC-51	30/9	10/3
AIRCRAFT	AS-3688	Blade	3	225-400	40	AN/ARC-159(V)	48/14	12/4
AIRCRAFT	AS-3557/A	Blade	2.1	30-88 118-156 156-174 225-400	15 10 15 30	AN/ARC-182(V)	444/135 41/12 38/12 37/11	23/7 10/3 10/3 10/3
AIRCRAFT	N/A	Blade	2.1	30-32 32.05-88 108-156 156-174 225-400	22 22 22 22 15	AN/ARC-210(V)	538/164 224/68 66/20 46/14 26/8	28/9 27/8 13/4 10/3 10/3
AIRCRAFT	N/A	Blade	2.1	243-243	0.2	AN/URT-33A	10/3	10/3
AIRCRAFT	AS-1464	Classified	Classified	Classified	Pulsed	AN/ALQ-65(V)1	3/10	3/10
AIRCRAFT	AS-1463	Classified	Classified	Classified	Pulsed	AN/ALQ-65(V)2	5.4/18	3/10
AIRCRAFT	AS-1463	Classified	Classified	Classified	CW	AN/ALQ-65	22/73	3/10
AIRCRAFT	AS-1464	Classified	Classified	Classified	Pulsed	AN/ALQ-65(V)3	3/10	3/10
AIRCRAFT	AS-3668	Classified	Classified	Classified	CW	AN/ALQ-65(V)3	22/73	3/10
AIRCRAFT	AS-3668	Classified	Classified	Classified	Pulsed	AN/ALQ-65(V)3	3/10	3/10
AIRCRAFT	AS-3669	Classified	Classified	Classified	CW	AN/ALQ-65(V)3	11.1/36	3/10
AIRCRAFT	AS-3669	Classified	Classified	Classified	Pulsed	AN/ALQ-65(V)3	3/10	3/10
AIRCRAFT	AS-3669	Classified	Classified	Classified	CW	AN/ALQ-65(V)3	11.1/36	3/10
AIRCRAFT	N/A	Blade	2.1	1090-1090	5.5	AN/APX-72A	5/2	3/1
AIRCRAFT	N/A	Blade	2.6	1025-1150	10	AN/ARN-52(V)	8/2	4/1
AIRCRAFT	N/A	Blade	2.1	1025-1150	10	AN/ARN-105	10/3	10/3
AIRCRAFT	AS-1858/APN	Dual-horn	13	4290-4310	0.5	AN/APN-171(V)	10/3	10/3
AIRCRAFT	AS-1739/APN		4	8500-9600	8	AN/APN-154(V)	1/0	1/0
AIRCRAFT	AS-3557/A	Blade	2.1	1090-1090	2.5	AN/APX-100(V)	10/3	10/3
AIRCRAFT	AS-741/A	Blade	2.6	1025-1150	21.6	AN/ARN-84(V)	11/3	6/2
AIRCRAFT	AS-2595/APN	Horn array	10.5	4290-4310	0.6	AN/APN-194(V)	1/0	1/0
AIRCRAFT	AS-2595/APN	Horn	4	8500-9600	8	AN/APN-154(V)	1/0	1/0
AIRCRAFT	AS-2272A	Rectangular	30.5	16250-16500	80	AN/APQ-126(V)	34/10	24/7

# PORTABLE AND MOBILE TRANSMITTERS (CONT.) MAR 12 2001

Antenna Number	Antenna Nomenclature	Antenna Type	Antenna Gain (dBi)	Transmitter Frequency (MHz)	Transmitter Power (watts)	Transmitter Type	Separation Distance	
							HERO UNSAFE ORDNANCE (feet/meters)	HERO SUSCEPTIBLE ORDNANCE (feet/meters)
AIRCRAFT	AS-2262	Slotted waveguide	18	13275-13375	8	AN/APN-190(V)	3/1	2/1
AIRCRAFT	AS-3669/ARN	Blade	2.25	1025-1150	10.8	AN/ARN-118(V)	8/2	4/1
AIRCRAFT	DM NI29-11	Blade	2.25	1025-1150	10.8	AN/ARN-118(V)	8/2	4/1
AIRCRAFT	AS-2595/APN	Horn array	10.5	4290-4310	0.6	AN/APN-194(V)	1/0	1/0
AIRCRAFT	AS-3017/APN	Slotted Waveguide	6	8800-9500	500	AN/APN-202	9/3	7/2
AIRCRAFT	AS-3385/ALQ	HI band	6.2	Classified	Classified	AN/ALQ-126A/B	59/18	39/12
	AS-3418/ALQ	LO band	6.2				59/18	39/12
	AS-3419/ALQ	MID band	0				30/9	20/6
	AS-3420/ALQ	MID band	0				30/9	20/6
	AS-3421/ALQ	HI band	4				40/14	30/9
AIRCRAFT	AS-3245/APG	Planar array	34	Classified	Classified	AN/APG-65 and APG-72 (Radar)	285/87	203/62
	AS-3245/APG	Slotted array	16			AN/APG-65 and APG-72 (Flood)	36/11	26/8
AIRCRAFT	AS-4241/AWW-13	Planar array	Classified	Classified	Classified	AN/AWW-13	33/10	20/6

# HERO CLASSIFICATION of ORDNANCE CONTAINING EED's

MAR 12 2001

NALC	NOMENCLATURE	HERO CLASS	OPERATION	DATA SHEET PAGE #	NOTES
					<b>SPECIAL HERO EMCON IS NOT REQUIRED FOR THE UNSAFE AND SUSC ORDNANCE ITEMS LISTED BELOW IF THE GENERAL HERO REQUIREMENTS OF THE HERO EMCON BILL ARE ADHERED TO</b>
3W78	TALD	SUSC	LOADING/UNLOADING	6-331	SAFE with LAUNCHED ADAPTER ASSY P/N 43-24000-105
4W38	TALD	SUSC	LOADING/UNLOADING	6-331	SAFE with LAUNCHED ADAPTER ASSY P/N 43-24000-105
A678	20MM TP PGU-27/B	SUSC	HANDLING	6-179	OUT OF LALS/M61 GUN
A679	20MM TP-T PGU-30/B	SUSC	HANDLING	6-179	OUT OF LALS/M61 GUN
A890	20MM HEI M56A3	SUSC	HANDLING	6-179	OUT OF LALS/M61 GUN
BWGI	LGTR	SAFE			
E173	ROCKEYE, MK 20-3	SAFE			
E895	ROCKEYE, MK 20-12	SAFE			
F810	FUZE, FMU-139A/B	SAFE			
FW64	CATM-9L	SAFE			
FW92	CCG, MAU-169A/B	UNSAFE			NO DATA
FW98	FLU-8	SAFE			
G382	TDD, MK 43-0	SAFE			
L580	MLM, MK 58-1	SUSC	LOADING/UNLOADING	6-227	
M012	CTG, MK 19-0	SUSC	LOADING/UNLOADING	6-259	
M182	CTG, A/C FIRE EXTG	SUSC	HANDLING/INSTALLING	6-276	
M193	CTG, A/C FIRE EXTG	SUSC	IN-FLIGHT OPS	6-279	
M514	CTG, MK 44-0	SUSC	HANDLING/LOADING	6-292	
MD65	CTG, CCU-45/B	SUSC	HANDLING/INSTALLING	6-233	SAFE WHEN BREECH CAPS ARE INSTALLED
MD66	CTG, CCU-44/B	SUSC	HANDLING/INSTALLING	6-233	SAFE WHEN BREECH CAPS ARE INSTALLED
MF29	CTG, CCU-63/B	SUSC	HANDLING/INSTALLED	6-239	AN/ALE-29, 29A, 37A, 39, D-59/ALE-47
MF60	CTG, CCU-41/B	SAFE	HANDLING/INSTALLED	6-242	AN/ALE-29, 29A, 37A, 39, D-59/ALE-47
MF73	CTG, A/C FIRE EXTG	SAFE			
MF74	CTG, A/C FIRE EXTG	SAFE			
MF75	CTG, A/C FIRE EXTG	SAFE			
MT29	TKT MTR, MK 122-0	SAFE			
MT88	CTG, CCU-100/A	SAFE			
MT89	CTG, CCU-101/A	SAFE			
MT95	CTG, CCU-107/B	SUSC	INSTALLED	6-252	APPLIES TO UH-1 HELO ONLY
MT98	CTG, CCU-102/A	SAFE			
MW19	CTG, SEAWARS	SUSC	INSTALLED	6-253	GEN I SEAWARS - SAFE IN GEN II & III
PB66	GM, AIM-7M	SUSC	LOADING/UNLOADING	6-309	ON LAU-115/A & 116/A WHILE CONNECTING LMFC
PB69	GM, AGM-65E, LASER	SAFE			
PD63	GM, AGM-65F, IR	SAFE			

# HERO CLASSIFICATION of ORDNANCE CONTAINING EED'S

MAR 12 2004

NALC	NOMENCLATURE	HERO CLASS	OPERATION	DATA SHEET PAGE #	NOTES
					<u>SPECIAL HERO EMCON IS NOT REQUIRED FOR THE UNSAFE AND SUSC ORDNANCE ITEMS LISTED BELOW IF THE GENERAL HERO REQUIREMENTS OF THE HERO EMCON BILL ARE ADHERED TO</u>
PM69	G&C, S/W, 9-M	UNSAFE			NO DATA
PU21	CATM-7M	UNSAFE			NO DATA
PU70	CATM-9M	UNSAFE			NO DATA
PV13	GM, ATM-7M-12	SUSC	LOADING/UNLOADING	6-309	ON LAU-115/A & 116/A WHILE CONNECTING LMFC
PV42	GM, NATM-9M-1	SAFE			
PV44	CATM-9M	SAFE			
PV74	GM, AIM-9M-4	SAFE			
PV89	GM, AIM-9M-8	SAFE			
WF18	CATM-88C-1, BLK V	UNSAFE			NO DATA
WF19	GM, ATM-88B, BLK IIIA	UNSAFE			NO DATA
WF20	GM, AGM-88B, BLK IIIA	UNSAFE			NO DATA
WF34	CATM-84H-1A, SLAM-ER	UNSAFE			NO DATA
ZY57	BOOSTER CHG ASSY	UNSAFE			NO DATA